

REMARKS

Claims 1-17 and 25-33 are pending in the application. Claims 17, 27, 30 and 31 are objected to. (However, claims 17, 30 and 31 are indicated as rejected on page 3 of the action.) Claims 1-16, 25, 26, 28, 29, 32 and 33 are rejected and are at issue. Claim 30 is amended herein to correct the indicated informality.

Applicants note the Examiner's comments under the heading "Response to Arguments" on page 2 of the action. Applicants agree that Wien et al. U.S. Patent No. 6,202,485 discloses a loop launcher connected to a control, a waveguide and an antenna connected to the waveguide. Applicants did not argue that these individual elements were not taught by Wien et al. Instead, applicants argued that the elements as more particularly recited in the claims herein are not disclosed in Wien et al. Particularly, Wien et al. does not disclose a loop launcher in the form recited in, for example, claims 1-11, as described more specifically below.

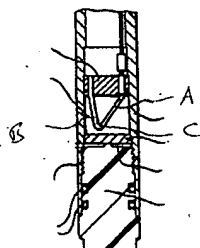
In response to applicants' argument that Wien et al. does not teach or suggest that the loop launcher is asymmetrical, the action references col. 2, line 47 of Wien et al. In fact, this passage references German patent DE-U 9412243 in which the exciter element is a transmitting pin inserted laterally into the waveguide. The apparatus disclosed in Wien et al. is not a transmitting pin. Nor is it inserted laterally into a waveguide. There are two different devices which function differently. The mere fact that the word asymmetrical is mentioned in the Wien et al. patent does not support any teaching that the device disclosed in the Wien et al. patent is such a device.

Applicants traverse the rejection of claims 1-5, 7, 9-17, 25 and 28-33 as anticipated by Wien et al. U.S. Patent No. 6,202,485.

Independent claim 1 specifies a process control instrument comprising a control for generating or receiving a high frequency signal. A waveguide comprises a cylindrical housing closed at one end by a rear wall. A loop launcher is operatively connected to the control and comprises a wire having a first straight leg electrically connected at one end to the control and extending into the first waveguide a first select length, a second straight leg connected at one to the rear wall and extending into the waveguide a second select length, greater than the first select length, and a curved middle section connecting other ends of the first and second straight legs. An antenna is operatively connected to the waveguide.

An anticipation can be established only by a single prior art reference disclosing each and every element of the claim, arranged as in the claim. Wien et al. does not anticipate claim 1. Particularly, Wien et al. does not include a loop launcher as recited in the claim.

In support of the rejection, the action simply repeats the claim language and references passages and figures of Wien et al. relative to the claim language. Particularly, with respect to the loop launcher, the action merely references a single line of the specification, namely, col. 5, line 51 and Fig. 5. The relevant portion of Fig. 5, with reference numerals substituted is shown:



As is apparent in Fig. 5, the loop launcher 5 is illustrated as a piece of wire having a single bend C connecting two apparently straight sections A and B. There is no middle section connecting ends of first and second straight legs. As such, Wien et al. does not anticipate claim 1. The ends of the first and second straight legs are directly connected to one another. More particularly, in the illustrated embodiment of Wien et al., the first leg A connected to the control extends into the waveguide a length greater than the length which the second leg B extends into the waveguide. For this reason also, Wien et al. does not anticipate claim 1.

Wien et al. at col. 5, lines 40-42 specifies that the transmitter wire is as described in DE-A19629593. This German application is the priority for cited Burger Patent 5,880,698. The Burger reference discloses a straight middle section connecting straight leg sections. The straight leg sections appear to be of equal length.

Regardless whether Wien et al. is interpreted based on the illustrated transmitter wire or the referenced transmitter wire in the Burger reference, it does not anticipate independent claim 1.

Claims 2-5, 7 and 9-11 depend from claim 1 and are therefore likewise not anticipated. Moreover, claim 2 specifies that the second leg is located at a center axis of the waveguide. No leg in Wien et al. is located at a center axis of the waveguide, see above. Nor does the action identify how it could be characterized as such.

Claim 4 specifies that the first select length is about a quarter of a wave length. The recitation at col. 5, line 55, of Wien et al. discusses the distance between the rear wall and the straight middle section being equal to a quarter wave length. The first section being angled, would

necessarily be of a greater length than a quarter of a wave length. Claim 4 is not anticipated for this reason as well.

Claim 5 specifies that the waveguide has a length of about three-quarter waveguide wave length. The action references col. 5, line 1 of Wien et al. This passage merely recites that the housing is a waveguide. There is no discussion of length. Claim 5 is not anticipated for this reason as well.

Claim 7 specifies that the loop launcher is asymmetrically placed entirely on one side of an axis of the waveguide. There is no such teaching in Wien et al, see above. Nor does the action reference any such teaching. Claim 7 is not anticipated for this reason as well.

Claim 10 specifies a coupling cavity surrounding the waveguide for coupling the antenna to the waveguide. There is no such coupling cavity in Wien et al. The action references element 31. Element 31 is an external thread on the antenna. It is threaded into the waveguide. Being internal to the waveguide, it not only does not comprise a coupling cavity, it does not surround the waveguide. Claim 10 is not anticipated for this reason as well.

Claim 11 depends from claim 10 and specifies that the coupling cavity is formed of metal to define an intermediate waveguide. There is clearly no such intermediate waveguide disclosed or suggested in Wien et al. Claim 11 is not anticipated for this reason as well.

Independent claim 12 specifies a process control instrument comprising a control for generating or receiving a high frequency signal. A waveguide comprises a cylindrical housing open at a distal end and closed at an inner end by a rear wall. A loop launcher is operatively connected to the control and comprises a wire electrically connected to the control and comprises a wire

electrically connected at one end to the control and extending into the waveguide and connected at another end to the rear wall. A coupling cavity comprises an open cylinder surrounding the waveguide and extending beyond the waveguide open end. An antenna is operatively coupled to the coupling cavity and the waveguide.

Wien et al. does not disclose or suggest a coupling cavity. Wien et al. discloses an antenna 4 directly connected to a waveguide, i.e, the housing section 13, see Fig. 5, above. The action references numeral 131 as a coupling cavity comprising an open cylinder surrounding the waveguide and extending beyond the waveguide open end. Element 131 is not a coupling cavity. It does not surround the housing section 13. Instead, element 131 is an internal thread, see Col. 5, lines 30-32.

Because Wien et al. does not disclose each and every element of claim 12, arranged as in the claim, there is no anticipation and the rejection is improper.

Claims 13-17 depend from claim 12 and are believed allowable for the same reasons therefor. Moreover, claims 13-15 disclose further details of the coupling cavity. As Wien et al. does not disclose a coupling cavity in any form, these claims clearly cannot be anticipated.

Claim 16 specifies details on the loop launcher similar to that recited in independent claim 1. The deficiencies of Wien et al. relative to claim 1 are repeated. Claim 16 is not anticipated for this reason as well.

Claim 17 specifies a union nut operatively secured to the waveguide for threading relative to the antenna at any angular orientation. The action does not identify any union nut in Wien

et al. There is a general reference to Fig. 5. There is no nut of any sort illustrated in Fig. 5, let alone a union nut. Claim 17 is not anticipated for this reason as well.

Independent claim 25 specifies a process control instrument comprising a housing and a control in the housing for generating or receiving a high frequency signal. A waveguide comprises a cylindrical housing closed at one end by a rear wall. A loop launcher is operatively connected to the control and comprises a wire electrically connected at one end to the control and extending into the waveguide and connected at another end to the rear wall to develop an asymmetrical radiated electrical magnetic field. An antenna is operatively coupled to the waveguide. Means are provided for rotatably mounting the waveguide to the housing so that the housing and the loop launcher can be independently oriented relative to a process vessel.

Initially, it is not apparent that the loop launcher of Wien et al. would develop an asymmetrical radiated electrical magnetic field. The action references col. 2, lines 11 and 47. There is no such discussion at line 11. Line 47 is discussing an unrelated patent, as noted above.

Moreover, Wien et al. do not disclose or suggest any means for rotatably mounting the waveguide to the housing so that the housing and the loop launcher can be independently oriented relative to a process vessel.

The action references the Abstract. The Abstract reads as follows:

“This level measuring instrument which operates with microwaves, has a radiation characteristic with a pronounced forward lobe and can be used to transmit and/or receive microwaves with a large frequency bandwidth. A housing section is designed as a waveguide short-circuited at one side and one end by a rear wall, and is virtually completely filled with an insert made of a dielectric. An exciter element, projects into the housing section and is connected to a microwave source. An antenna adjoins the housing section, for transmitting and/or receiving microwaves. A gap is arranged in

the insert between the exciter element and the antenna. The gap forms a filter which is essentially non-transparent to higher modes of the waveguide.”

The Abstract does not even mention a waveguide being mounted to a housing. Instead, the housing is itself a waveguide. It is one-piece. There is no structure in Wien et al. that performs the function of mounting a waveguide to the housing so that the housing can be independently oriented relative to the process vessel or a loop launcher can be independently oriented relative to a process vessel. As such, claim 25 is not anticipated by Wien et al.

Claims 28-33 depend from claim 25 and are likewise not anticipated. Moreover, claim 25 specifies that the waveguide comprises a two piece assembly including a waveguide adaptor operatively secured to the housing and a waveguide adaptor tube extending from the waveguide adaptor. The action references col. 5, line 1 of Wien et al. This passage does not disclose or suggest a two piece housing. Nor did the drawings illustrate a two piece housing. Instead, the housing is clearly one-piece. Claim 28 is not anticipated for this reason as well.

Claim 30 further specifies a union nut. As discussed above, Wien et al. does not disclose or suggest a union nut. It does not disclose any nut. Claim 30 is not anticipated from this reason as well. Claim 33 specifies details of the loop launcher, similar to those discussed above relative to claim 1. No such loop launcher is disclosed or suggested in Wien et al. Claim 33 is not anticipated for this reason as well.

In addition to lack of anticipation, Wien et al. is not remotely relevant to any of independent claims 1, 12 and 25. Wien does not suggest the invention of any of these claims. Therefore, any obviousness rejection would also be improper.

For the above reasons, claims 1-5, 7, 9-17, 25 and 28-33 are believed allowable and withdrawal of the rejection is requested.

Applicants traverse the rejection of claims 2, 6 and 8 as obvious over Wien et al. Claim 2 is also rejected as anticipated.

Claims 2, 6 and 8 depend from claim 1. Claim 2 specifies that the second leg is located at a center axis of the waveguide. Claim 6 specifies that the curved middle section has a radius of about 10 mm. Claim 8 specifies that the first leg is parallel with the second leg. Because claim 1 is not obvious, none of claims 2, 6 or 8 are obvious.

Because claim 1 is not obvious, dependent claims 2, 6 and 8 are likewise not obvious. The supposed motivation for modifying Wien et al. expressed in the action is “for providing the control microwave pulses for generating or receiving a high frequency with a center frequency about 6 GHz as described in Wien et al. (col. 7, line 27)”. The function described in Wien et al. allegedly results from a gap 8 having a width of about 1mm. Wien et al. do not disclose or suggest that placing a second leg at a center axis of the waveguide would provide that function, or that having a curved middle section with a radius of about 10mm would provide that function or that placing the first leg parallel with the second leg would provide this function. Indeed, the indicated result is provided with the structure expressly disclosed in Wien et al. so that there is no motivation to modify the teachings of Wien et al.

Moreover, regarding claim 6, Wien et al. does not disclose a curved middle section. It discloses either no middle section or a straight middle section. A straight middle section cannot

have a radius. It would not be obvious to one skilled in the art to modify a straight section to make it curved and to have a radius of about 10mm. Claim 6 is not obvious for this reason as well.

Regarding claim 8, Wien et al. does not disclose or suggest that the legs are parallel. Nor could they be. If the two legs illustrated in Wien et al. were parallel, they would be in contact with one another. The device would not operate. The Burger reference discloses that the legs are each at an angle relative to the center section and to one another. There is absolutely no suggestion that they be parallel. Claim 8 is not obvious.

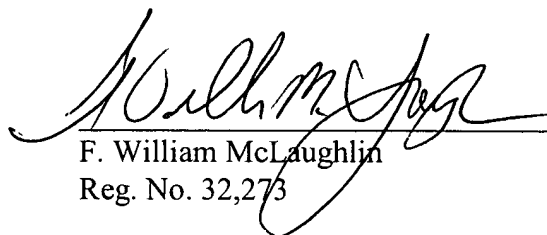
For the above reasons, claims 2, 6 and 8 are believed allowable and withdrawal of the rejection is requested.

Applicants note the apparent allowability of claims 17, 27 and 30-31. However, as the claims on which they depend are believed allowable, the claims are not rewritten in independent form at this time. Moreover, claims 17, 30 and 31 are indicated as rejected on page 3 of the action.

Reconsideration of the application and allowance and passage to issue are requested.

Respectfully submitted,

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